

PERLESTA XUBE, A NEW STONEFLY SPECIES FROM NEBRASKA (PLECOPTERA: PERLIDAE)¹

Bill P. Stark², Howard A. Rhodes³

ABSTRACT: *Perlesta xube*, a new stonefly species, is described from male, female, egg and nymphal stages, and a holotype male is designated. Adults are similar to *Perlesta adena* but differ most significantly in aedeagal shape and pattern of armature. The new species is known from a single location in northwestern Nebraska.

For most of this century, *Perlesta placida* (Hager) was regarded as a common, but variable, species found throughout eastern North America. Stark (1989) recognized twelve members in a complex of species differentiated primarily on the basis of internal male genitalia and egg morphology. In this study we call attention to an additional member of this complex found in Nebraska. Terminology and methods follow Stark (1989).

***Perlesta xube*, NEW SPECIES**

Male. Forewing length 7 mm. General color dark brown. Head and pronotum brown, patterned with dark brown, but with a pair of oval pale spots anterolateral of posterior ocelli (Fig. 1). Basal antennal segments pale, becoming dark brown beyond segment 8. Forefemora longitudinally striped in yellow and brown. Wing membrane and veins dark brown except for pale areas proximal to the arculus, in the mid-costal region, along the median vein anterior to the cord, and in the intercubital area (Fig. 7). Basal cereal segments banded, becoming dark brown beyond segment 8. Paraprocts in lateral aspect slender, curved forward and bearing a subapical tooth (Fig. 4). Tergum 10 mesal sclerite almost divided by membranous band; sensilla basiconica patch sparse (Fig. 3). Penis tube slender and sinuate, dorsal hair patch (DP) narrow subapically but broadly expanded apically around base of caecum (C); apex of caecum bare (Fig. 6).

Female. Forewing length 9-10 mm. Color pattern similar to male. Subgenital plate lobes truncate and separated by a U-shaped notch. Plate dark laterally and membranous mesally (Fig. 5).

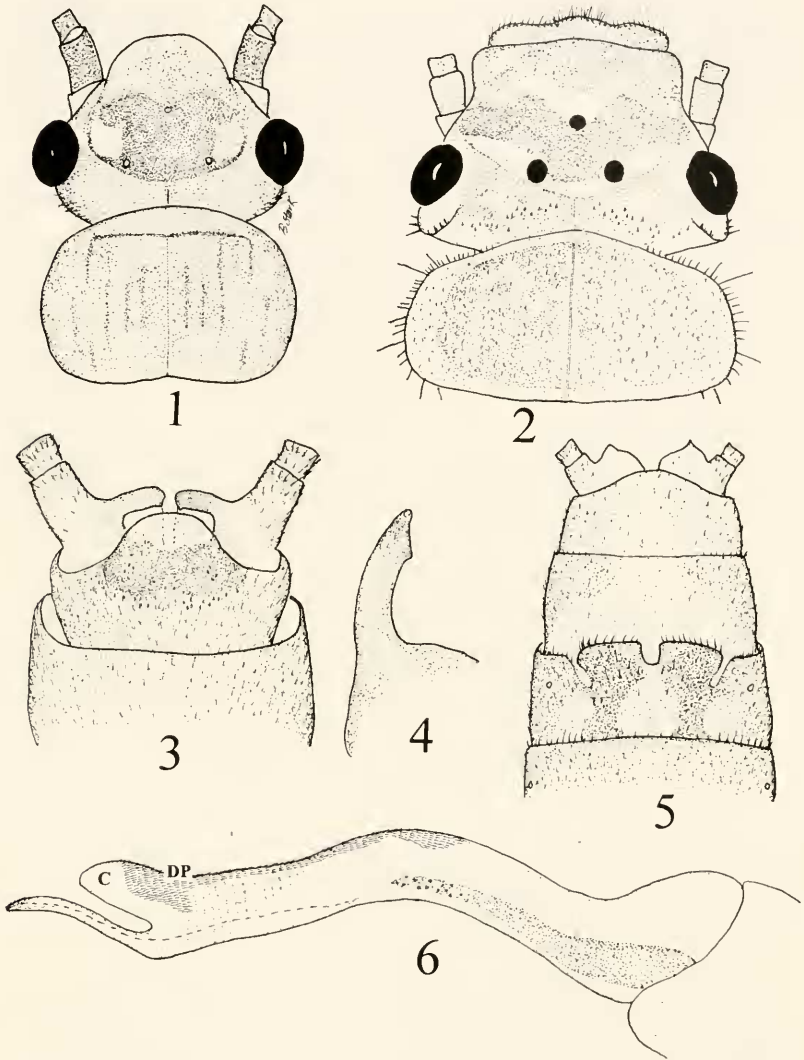
Egg. Length ca. 0.5 mm, width ca. 0.4 mm. Collar obscure, buttonlike, not shown in orientation of Fig. 8. Chorion finely pitted around poles and coarsely pitted in mesal third (Fig. 8). Micropylar row in posterior region with pitted field (Fig. 9).

Nymph. General color dark brown. Light colored M-line of head pattern distinct (Fig. 2). Abdominal terga brown with dark brown pigment spots around intercalary setae.

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² Biology Department, Mississippi College, Clinton, MS 39058.

³ Department of Entomology, Colorado State University, Fort Collins, CO 80523.



Figs. 1-6. *Perlesta xube* morphological features. 1. Adult head and pronotum. 2. Nymphal head and pronotum. 3. Male terminal abdominal segments, dorsal. 4. Male paraproct, lateral. 5. Female terminal abdominal segments, ventral. 6. Penis tube+sac, lateral (C = caecum, DP = dorsal patch).

Types. Holotype ♂, 30 paratype ♂ and 29 paratype ♀ specimens collected in Nebraska, Cherry Co., Dry Creek, Merriman, 26 June 1996, B. C. Kondratieff, H. Rhodes. Additional paratypes reared from nymphs collected at type locality, 6 June 1995, 2 ♂, 9 ♀, B. C. Kondratieff. Holotype and one female paratype deposited in the National Museum of Natural History, other paratypes deposited in the C. P. Gillette Museum of Arthropod Diversity, Colorado State University and in the Stark collection, Mississippi College.

Type locality. Dry Creek flows through Merriman, Nebraska, as a channelized stream with rather steep banks and a swift current. Cottonwoods form a riparian corridor along the stream. Robust populations of the mayflies *Acerpenna pygmaea* (Hagen), *Baetis tricaudatus* Dodds, *Ephemerella inermis* Eaton, and *Heptagenia diabasia* Burks were found along with the damselflies *Calopteryx aequabilis* Say and *Hetaerina americana* (Fabricius). The only stonefly species collected with *P. xube* were *Isoperla quinquepunctata* (Banks) and *Perlesta decipiens* (Walsh).

Etymology. The Native American Ponca lived in the region of northern Nebraska where this species was discovered. Their word *xube* means "supernatural power", which they believed all things possessed in varying amounts (Leitch 1979).

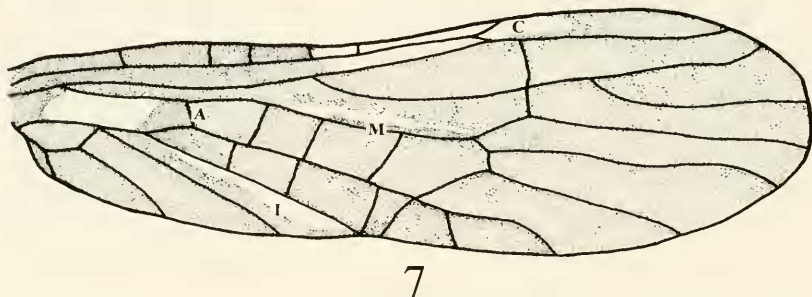
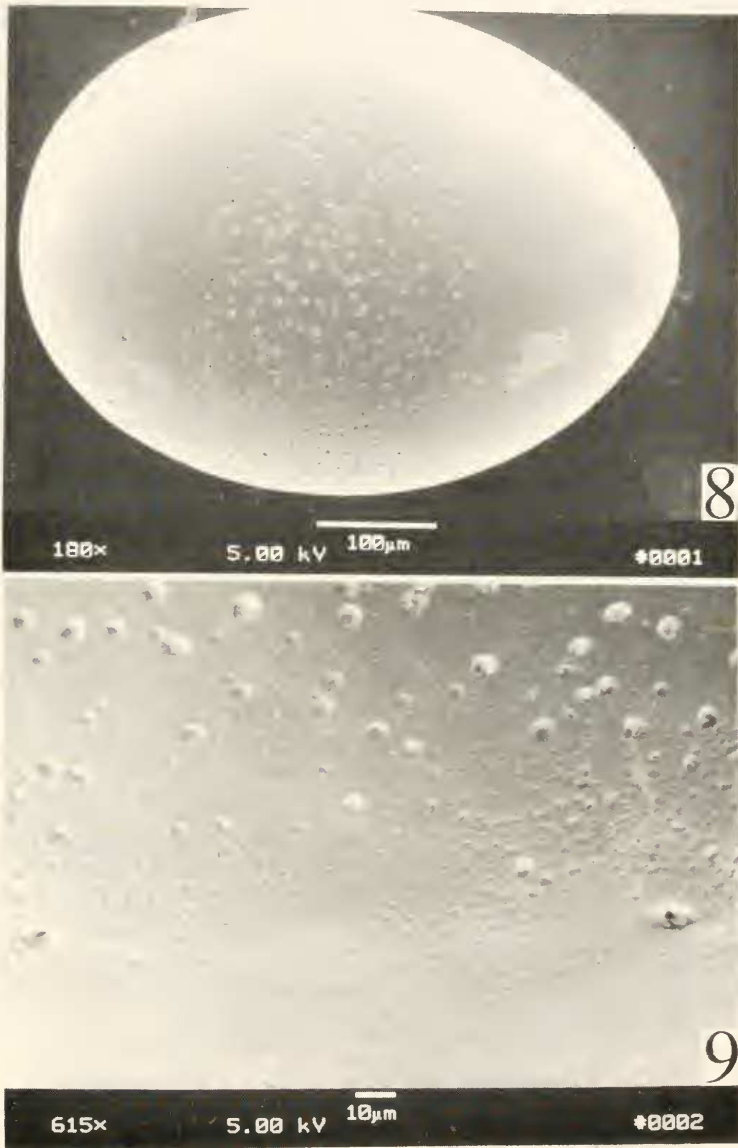


Fig. 7. Forewing of *Perlesta xube* showing pale areas in the costal area (C), proximal to the arculus (A), along the median vein (M), and in the intercubital area (I).

DISCUSSION

Adult specimens of *P. xube* key to couplet 6 in Stark (1989). At that point an impasse occurs because the penis tube is short, slender and has the dorsal patch expanded at the apex (Fig. 6). In these features *P. xube* agrees with neither *P. cinctipes* nor *P. adena*, but the expanded dorsal patch is somewhat similar to that of *P. adena*. The egg is also quite similar to that of *P. adena* and isolated females might prove difficult to distinguish from that species. However, the wing pigmentation pattern of *P. xube* (Fig. 7) should be distinctive enough to



Figs. 8-9. Scanning electron micrographs of *Perlesta xube* egg features. 8. Lateral aspect. 9. Detail of micropylar region of posterior pole.

permit identification. Nymphal specimens appear distinct from *P. decipiens* (Walsh) and *P. cinctipes* (Banks) by virtue of the darker pigment pattern of the occiput and anterior region of the frons (Fig. 2).

With the addition of *P. xube*, 13 species of stoneflies are now known for Nebraska (Rhodes & Kondratieff 1996).

ACKNOWLEDGMENTS

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LITERATURE CITED

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tions, scanning electron micrographs, and line drawings of critical taxonomic features serve to identify both larval and adult forms. In fact, a number of previously undescribed larval forms are included in the keys. The authors have not used the "common" names recently given to all North American damselflies.

The book's introduction deals with morphology, classification, fossil record, life cycle, adult and larval behavior, physiology, biogeography, habitats, and conservation. That is followed by color photographs mostly of specimens in natural poses and mostly with good color reproduction. The main part of the book (~80%) contains keys, figures and detailed descriptions of each species. The extensive glossary, bibliography, and index all make this a very accessible book for both novices and old timers who want to learn more about damselflies.

Although as insects go, damselflies are fairly well known, there are still new species and new larval forms to describe, smoldering taxonomic problems to resolve, and much to be learned about behavior and distribution. A particularly useful aspect of this book is that it identifies many of these lacunae and thus provides the sense that much remains to be discovered. Students looking for projects can find one for almost every species. *Damselflies of North America* will be widely used and should further increase the demand for the next book in this area, a much needed field guide.

Harold B. White
University of Delaware